



IFW
Docket No.: 0283-0224PUS1
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Shigeyoshi NISHINO et al.

Application No.: 10/572,373

Confirmation No.: N/A

Filed: March 16, 2006

Art Unit: N/A

For: PROCESS FOR PREPARING NITRILE
COMPOUND, CARBOXYLIC ACID
COMPOUND OR CARBOXYLIC ACID
ESTER COMPOUND

Examiner: Not Yet Assigned

LETTER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Subsequent to the filing of the above-identified application on March 16, 2006, attached hereto is an English translation of the International Preliminary Report on Patentability (Form PCT/IB/338 and 373) and of the Written Opinion of the International Searching Authority (Form PCT/ISA/237) that should be made of record in the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or to credit any overpayment to Deposit Account No. 02-2448 for any

Application No.: 10/572,373

Docket No.: 0283-0224PUS1

additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Dated: SEP 01 2006

Respectfully submitted,

By  #43575

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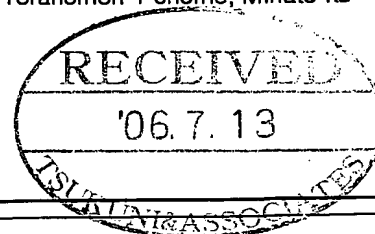
From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF TRANSMITTAL
OF COPIES OF TRANSLATION
OF THE INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY
(CHAPTER I OR CHAPTER II
OF THE PATENT COOPERATION TREATY)
(PCT Rules 44bis.3(c) and 72.2)

To:

TSUKUNI, Hajime
SVAX TS Bldg., 22-12, Toranomon 1-chome, Minato-ku
Bokyo
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JAPON



Date of mailing (day/month/year) 06 July 2006 (06.07.2006)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference FP2706PCT	
International application No. PCT/JP2004/013626	International filing date (day/month/year) 17 September 2004 (17.09.2004)
Applicant UBE INDUSTRIES, LTD. et al	

1. Transmittal of the translation to the applicant.



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

2. Transmittal of the copy of the translation to the designated or elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

None

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EG, EP, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

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1211 Geneva 20, Switzerland

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference FP2706PCT	FOR FURTHER ACTION	See item 4 below
International application No. PCT/JP2004/013626	International filing date (<i>day/month/year</i>) 17 September 2004 (17.09.2004)	Priority date (<i>day/month/year</i>) 19 September 2003 (19.09.2003)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant UBE INDUSTRIES, LTD.		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).																								
2.	This REPORT consists of a total of 5 sheets, including this cover sheet. In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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<input type="checkbox"/>	Box No. VIII	Certain observations on the international application																							
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Date of issuance of this report 26 June 2006 (26.06.2006)
Facsimile No. +41 22 338 82 70	Authorized officer <div style="text-align: center; font-weight: bold;">Yoshiko Kuwahara</div> e-mail: pt07@wipo.int

PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing
(day/month/year)

Applicant's or agent's file reference
FP2706PCT

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2004/013626

International filing date (day/month/year)

17.09.2004

Priority date (day/month/year)

19.09.2003

International Patent Classification (IPC) or both national classification and IPC

Applicant

UBE INDUSTRIES, LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP

Authorized officer

Facsimile No.

Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/013626

Box No. I

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language
_____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2004/013626

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	6-4	YES
	Claims	1-5	NO
Inventive step (IS)	Claims		YES
	Claims	1-14	NO
Industrial applicability (IA)	Claims	1-14	YES
	Claims		NO
2. Citations and explanations:			
<p>Document 1: JP 8-501299 A (Vertex Pharmaceuticals Incorporated) 13 February 1996 & WO 94/005639 A1 & EP 659181 A1</p> <p>Document 2: KRUSE Lawrence I., et al. "Some Benzyl-Substituted Imidazoles, Triazoles, Tetrazoles, Pyridinethiones, and Structural Relatives as Multisubstrate Inhibitors of Dopamine β-Hydroxylase, 4. Structure-Activity Relationships at the Copper Binding Site" J. Med. Chem. 1990 Vol. 33 No.2 P781-789</p> <p>Document 3: STRASSIER, Christoph, et al. "112. Novel Heterospirocyclic-Amino-2H-azirines as Synthons for Heterocyclic α-Amino Acids" HELVETICA CHIMICA ACTA 1997 Vol. 80 P1528-1554</p> <p>Document 4: JP 54-122220 A (Nisshin Flour Milling Co., Ltd.) 21 September 1979 (Family: none)</p> <p>Document 5: JP 59-51251 A (Daikin Industries, Ltd.) 24 March 1984 (Family: none)</p> <p style="text-align: center;">All of the above documents are cited in the ISR.</p> <p style="text-align: center;">Claims 12-14</p> <p>Document 1 describes a method of producing 4- (aminomethyl) tetrahydro-4H-pyran by reducing 4-cyanotetrahydro-4H-pyran in an anhydrous ethanol solvent and in the presence of Raney nickel using hydrogen (see in particular, example 80).</p> <p>Although the cited documents do not describe the point whereby the reaction is carried out in the presence of ammonia, document 2 describes carrying out the hydrogen reduction for the methyl amino group of the cyano group using Raney nickel in the presence of ammonia and applying the technical means described in document 2 to the inventions described in document 1 could be easily carried out by a person skilled in the art.</p> <p>Accordingly, claims 12-14 do not appear to involve an inventive step based on document 1 and 2.</p> <p style="text-align: center;">Claims 1-5</p> <p>Document 5 describes a method for producing corresponding benzyl cyanide by reacting α-(alkoxy carbonyl) benzyl cyanide in the presence of halogenated</p>			

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

copper or copper and halogen (hereafter, referred to as "copper catalyst") and carrying out heat treatment in an aqueous solution with basicity at 80-90 °C.

Accordingly, claims 1-5 do not appear to possess novelty and to involve an inventive step based on document 5.

Claims 1-5

Document 4 describes a method for producing isoprenyl acetic acid by decarboxylation of isoprenyl malonic acid in the presence of a basic metal-containing compound.

The same document further describes being able to complete the reaction at 90-150°C, using an inert solvent as needed.

Accordingly, claims 1, 3, 4 and 5 do not appear to possess novelty based on document 4.

In addition, although this document does not describe the point whereby the decarboxylation reaction is carried out in the presence of a metal catalyst, document 5 does describe carrying out the decarboxylation reaction in the presence of a copper catalyst and applying the technical means described in document 5 to the invention described in document 4 could be easily carried out by a person skilled in the art.

Accordingly, claim 2 does not appear to involve an inventive step based on document 4 and 5.

Claims 6-11

Document 3 describes a method for producing tetrahydro-2H-pyran-4-carboxylic acid by reacting bis (2-halogenoethyl) ether and diethyl malonic acid ester, adding to a hydrolysis reaction and a decarboxylation reaction after obtaining tetrahydro-2H-pyran-4, 4-dicarboxylic acid ethyl ester.

Although the document does not describe the point whereby the decarboxylation reaction in the presence of a copper catalyst, document 5 does describe carrying out the decarboxylation reaction in the presence of a copper catalyst and applying the technical means described in document 5 to the inventions described in documents 3 could be easily carried out by a person skilled in the art.

Accordingly, claims 6-11 do not appear to involve an inventive step based on document 3 and 5.

It would not be especially difficult for a person skilled in the art to conceive of producing the 4-cyanotetrahydro-4H-pyran described in document 1 in accordance with the decarboxylation reaction described in document 4 and arrive at the invention made by applying the production method described in document 3 using the corresponding tetrahydro-2H-pyran-4-cyano-4-carboxylic acid ester as a raw material compound. Also, the point that decarboxylation at that time is carried out in the presence of a copper catalyst as described in document 5 could be easily conceived of by a person skilled in the art.

Accordingly, claims 6-11 do not appear to involve an inventive step based on documents 1 and 3-5.